

# Rhodora

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## SOME MOSSES FROM AROOSTOOK COUNTY, MAINE.

J. FRANKLIN COLLINS.

A VERY interesting small packet of mosses, collected in Caribou Bog at Crystal in southern Aroostook County, Maine, by Professor and Mrs. M. L. Fernald, was recently handed to me for determination. It contained one species of *Sphagnum*, one hepatic, and four true mosses. The *Sphagnum* is *S. teres* Ångstr., a moss of wide distribution in northern Eurasia and North America, having been recorded on this continent at various places from Labrador to British Columbia, and southward to New England and New Jersey, including Maine.

The hepatic has been determined by Dr. Evans. He writes "Your hepatic from Maine (5351) is a slender form of *Riccardia pinguis* (L.) S. F. Gray. I have not before seen it from this state." It has previously been reported in New England from New Hampshire, Vermont, Rhode Island, and Connecticut.

The four species of true mosses have not, so far as the writer knows, been hitherto recorded from Maine, yet all of them, judging from their previously known distribution, should have been expected to occur in the state. In their general distribution they may be classed as northern mosses reaching their southern limits in the bogs and swamps, usually if not always limy, of New England, New York, Pennsylvania, or Ohio, or in the general latitude of 40° N. Their names, together with the previously recorded distribution of each, are given below.

*Hypnum stellatum* Schreb. Eurasia. Greenland, Hudson Strait, Labrador, Newfoundland, Miquelon, Anticosti, Gaspé, Vermont, Massachusetts, Rhode Island, Pennsylvania, Ontario, Lake Superior, Manitoba, Montana, Athabasca, Canadian Rockies, British Columbia, Yukon, Alaska.



*Hypnum scorpioides* L. Eurasia. Greenland, Labrador, Newfoundland, Miquelon, Anticosti, Gaspé, New Hampshire, Vermont, Ontario, Peace River, Canadian Rockies, British Columbia, Yukon, Alaska.

*Camptothecium nitens* (Schreb.) Schimp. Eurasia. Hudson Strait, Labrador, Anticosti, Gaspé, New Brunswick, Vermont, Rhode Island, Connecticut, New York, Pennsylvania, Ontario, Minnesota, Saskatchewan, Peace River, Canadian Rockies, British Columbia, Northwest Territory, Alaska.

*Hypnum trifarium* Web. & Mohr. Eurasia. Greenland, Gaspé, Ontario, Ohio, British Columbia. No record of this species having been collected in New England has been found.

Even a casual perusal of the distribution of the last four species, as here outlined, will show the striking similarity of general range. The collections of the writer in the Gaspé Peninsula during the past four years have demonstrated the fact that there they, especially the last three, are occasionally associated in the marly bogs and along marly pond margins. The strikingly similar general range of the four in North America at least suggests the possibility that they may be closely associated elsewhere than in Gaspé and Maine. That the last named species has not been reported from as many stations as the other three may be due partly to the fact that it often grows more or less scattered or isolated through great colonies of much more conspicuous mosses, for example, *Hypnum scorpioides*.

PROVIDENCE, R. I.

## VIOLA CHINENSIS IN THE EASTERN UNITED STATES.

EZRA BRAINERD.

THE behavior of *Viola chinensis* in four or five localities in the Eastern States indicates the possibility of its becoming established as a more or less troublesome weed. The story of the introduction of the gypsy moth and of the English sparrow into the United States, and of the American water-weed, *Elodea canadensis*, into the canals and rivers of England, should make us watchful of foreign plants or animals, that are cultivated from scientific curiosity.

I first made the acquaintance of *Viola chinensis* in the violet beds of the New York Botanical Garden. Numerous seedling plants were noticed, scattered about and growing with other species. In several instances it was the only plant that answered to a label such as *Viola hirta* (of Europe) or *V. odontophora* (of the Rocky Mts.). Evidently in these cases the plant originally set had died, and the self-sown *V. chinensis*, springing up in its place, had been taken by the gardener for the rightful plant. At the time I utterly failed to make out the proper name of the usurper; but plants and seeds were obtained for further study in my own garden.

I soon learned to connect this puzzle with another. In the Britton Manual, p. 637, there is described a stemless, purple violet, "escaped from cultivation and established, Washington, D. C. Adventive from Europe," under the name "*Viola lancifolia* Thore." But a moment's reference to a European Botany reveals the fact that Thore's *V. lancifolia* is a *stemmed* violet, allied to, if not a variety of, the Dog-violet (*V. canina*). Yet however unaccountable the use of this name might be, the plant so designated by Mr. Pollard was evidently identical with the lusty stranger at Bronx Park.

The plants transferred to the Middlebury garden seemed but little disturbed by the change, and kept on producing seeds until late in the autumn. The following spring numerous young plants came up within a radius of eight feet from the mother plants, so that I destroyed the fine crop that had appeared from seeds intentionally sown in the seed boxes,—realizing that my guest was making himself rather too much at home with me. A few weeks later I received living plants of the same thing from Prof. Fernald, of Cambridge, who spoke of it as a strange violet which "has become a weed in a large portion of the Botanic Garden."

On my next visit to Washington, last April, I was able through the kind assistance of Mr. Theo. Holm to clear up much of the mystery that had surrounded the plant. Specimens sent to Mr. W. Becker, the violet specialist of Berlin, were pronounced by him to be *Viola chinensis* G. Don, a native of Eastern Asia. Mr. Holm was informed at the Botanic Garden that the plants came from seed obtained in England about twenty years ago, and that it had spread as a weed in the garden. I saw it also well established in the grounds about Mr. Holm's residence in Brookland, D. C., to which he had transferred plants about ten years previous.



The plant though very distinct from any American species, is yet more nearly allied to our *V. sagittata* and *V. cucullata* than to any species of Europe or of Western America,—another instance of the close relationship, pointed out by Dr. Gray, between the Flora of northeastern Asia and that of northeastern America. *V. chinensis* has a long, stout, somewhat branching root, and seems well prepared to withstand drought, or the hot sun of open fields. The flower is lilac-purple; the spur 7 mm. long, rounded at the end, much compressed laterally, being 4 mm. wide but only 1.5 mm. thick. The numerous cleistogamous capsules are ovoid, green, on erect peduncles. Most of the stations named are populous cities of Japan or Eastern China; from which we may surmise that the species is more or less domesticated, and thrives in cultivated ground in the Orient, as it certainly does with us.

MIDDLEBURY, VERMONT.

## SPHAGNUM FAXONII; AN ADDITION TO THE FLORA OF NEW ENGLAND.

CARL WARNSTORF.

SINCE my friend the late Edwin Faxon was one of the original members of the New England Botanical Club, it seems fitting that the *Sphagnum* which I have recently named in his memory should be brought to the attention of his old associates by publishing in RHODORA a translation of the original description.<sup>1</sup> I wish to say, by way of preface, that Mr. Faxon, an indomitable collector of *Sphagna*, sent me for investigation during the nineties thousands of specimens from New England, all prepared with the most pains-taking care. To many others than myself "*Sphagna Boreali-Americana Exsiccata*," an extremely noteworthy collection of one hundred seventy-two representative specimens of American peat mosses issued by Faxon in collaboration with Professor D. C. Eaton, stands as testimonial to his persevering and accurate work as a collector. Faxon was preëmi-

<sup>1</sup> Neue europäische und aussereuropäische Torfmoose. Hedwigia XLVII. p. 117 (1908).

nently lovable, unselfish, and modest,—such a man as I have but seldom come in contact with during my life. He translated my “Contributions to the Knowledge of the North American Sphagna” for publication in the *Botanical Gazette*,<sup>1</sup> but although I urged him to do so, he did not associate his own name with the articles. I hope that in describing the following moss I have permanently connected the name of this truly exceptional man with his favorite genus.

*SPHAGNUM FAXONII* Warnst. Forming closely compacted tufts as much as 12 cm. deep, below grayish-brown, above pale yellowish, in habit similar to a weak *Sph. cuspidatum* var. *plumosum*. Cortex of two or three layers of cells, plainly differentiated from the strong, pale or yellowish woody axis. Prosenchyma cells widened and thick-walled. Stem leaves (both dry and moist) spreading, isosceles-triangular or in part almost triangular-linguiform, 0.75–1.00 mm. long and 0.50–0.60 mm. broad, at the narrow truncate apex minutely denticulate, otherwise entire, with broad margins which are greatly expanded below the middle. Hyaline cells either not at all or only occasionally septate, fibrillose in the upper third or even to the middle of the leaf, on the inner surface mostly with a few unringed pores between the fibrils, on the outer surface, toward the apex, with a few small corner-pores. Fascicles moderately crowded, generally three- but occasionally four-branched. Branches almost equally strong and spreading, up to 12 mm. in length, attenuated toward the apex; their leaves crowded, when dry not or hardly at all undulate, when moist slightly turned to one side, lanceolate, on the average 1.40–1.45 mm. long and 0.30–0.35 mm. wide, at the broad truncate apex coarsely three- or four-toothed, narrowly margined by two or three rows of elongated cells, involute clear to the base so as to be almost tubular, entire. Hyaline cells reënforced by numerous fibril-bands, on the inner surface of the leaf with comparatively few generally unringed medium sized pores in the cell angles, on the outer surface with hardly any pores except in the lower cell angles, but occasionally weakly ringed pseudo-pores occur in short rows along the commissures of scattered cells. Chlorophyll cells in cross-section usually trapezoidal and exposed on both sides of the leaf, with the longer of the parallel sides exposed on the outer surface, but triangular cells occur sporadically, in which case they are enclosed on the inner surface of the leaf by the

<sup>1</sup> Bot. Gaz. XV pp. 127–140, 189–198, 217–227, 242–255. (1890.)



strongly under-arching hyaline cells.— Massachusetts, 16 Sept., 1891, leg. Faxon.

This species may be distinguished from *Sph. cuspidatum* by the very narrowly margined branch leaves, from *Sph. angustilimbatum* by much smaller stem leaves which are not fibrillose to the base, and which have the margins broadened below, as well as by the mostly three-branched fascicles with equally divergent branches.

FRIEDENAU, 25 Feb. 1908.

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NOMENCLATORIAL CHANGES IN ISOËTES.—ISOËTES MACROSPORA Dur., var. **heterospora**, comb. nov. *Isoëtes heterospora* A. A. Eaton appears to be a form of *I. macrospora* Dur., endemic in streams and ponds on Mt. Desert Island. The vegetative parts of the two appear to be practically identical, differences being confined to the spores, which vary greatly in size and markings in the Mt. Desert plants. I therefore think it proper to reduce *I. heterospora* to the rank of a variety of *I. macrospora*.

I. DODGEI A. A. Eaton, var. **Robbinsii**, comb. nov. In compliance with Art. 49 of the Vienna Code the name *I. Dodgei* must be restored to the species designated by Engelmann as *I. riparia*, var. *canadensis* (*I. canadensis* A. A. Eaton), since it is the earliest name of the plant in its present rank. It becomes necessary, therefore, to change *I. canadensis*, var. *Robbinsii* to *I. Dodgei*, var. *Robbinsii*.—A. A. EATON, The Ames Botanical Laboratory, North Easton, Massachusetts.

## A SOUTHERN FLORA AND FAUNA OF POST-PLEISTOCENE AGE IN ESSEX COUNTY, MASSACHUSETTS.

JOHN H. SEARS.

THIS paper is the result of special studies upon a fossil or ancient marine molluscan fauna, collected in estuaries and bays on our coast, with a view to explaining the presence of certain plants of a southern flora found growing today in Essex County, Massachusetts, and elsewhere near the coast of New England. The data and conclusions of the paper may be stated under three headings.



I. A warm epoch is indicated by the presence in Essex County and in adjacent parts of New England of a southern flora which has become acclimated here and is apparently a survival from a warmer period. The most striking plants of this flora are enumerated below, and for sake of clearness the distance in miles from their stations north of Boston to the nearest known stations south of Boston is given.

<i>Names of Plants.</i>	<i>Stations north of Boston.</i>	<i>Interval in Miles<sup>1</sup></i>	<i>Nearest known Stations south of Boston.</i>
<i>Sparganium lucidum</i> Fernald & Eames.	Medford.	65	Barnstable, Mass.
<i>Sagittaria Engelmanniana</i> J. G. Smith. <sup>2</sup>	Tewksbury.	80	Barnstable, Mass.
<i>Echinodorus terellus</i> (Martius) Buchenau.	Winchester.	340	Canterbury, Del.
<i>Scirpus Hallii</i> Gray	Winchester.	1115	Indian River, Fla.
<i>Fuirena squarrosa</i> Michx.	Tewksbury.	50	Plymouth, Mass.
<i>Scleria reticularis</i> Michx.	Winchester.	40	Plymouth, Mass.
<i>Betula nigra</i> L.	{ Merrimac Valley, Pelham, N.H.; Lawrence; North Andover; Ipswich (rare).	115	Suffolk Co., L. I.
<i>Magnolia virginiana</i> L.	Essex and Magnolia Swamps, becoming nearly extinct.	120	Suffolk Co., L. I.
<i>Crotalaria sagittalis</i> L.	Cambridge, Winchester, Wakefield, etc.	40	Plymouth, Mass.
<i>Linum sulcatum</i> Riddell.	Peabody and Arlington.	40	Providence, R. I.
<i>Ilex opaca</i> Ait.	Rockport, where extinct since 1880.	36	Quincy, Mass.
<i>Ilex glabra</i> (L.) Gray.	Wenham and Magnolia Swamps, where the growing shrubs are rarely more than 2 feet high with stems $\frac{1}{4}$ inch in diameter.	30	Blue Hill Reserv. tion, Mass.
<i>Ludwigia sphaerocarpa</i> Ell.	Waltham, Bedford, Lowell, etc.	105	Guilford, Conn. & Suffolk Co., L. I.
<i>Sabatia stellaris</i> Pursh.	Amesbury and Salisbury.	50	Pembroke, Mass.
<i>Cuscuta arvensis</i> Beyrich.	Winchester.	90	Nantucket.
<i>Cuscuta compacta</i> Juss.	Tewksbury.	50	Lincoln, R. I.
<i>Coreopsis rosea</i> Nutt.	Winchester and Woburn.	40	Plymouth, Mass.

Professor W. G. Farlow, in the *Marine Algae of New England*, p. 6, writes "In the town (now city) of Gloucester, near the village of Squam, is a small sheet of water called Goose Cove. In this cove, to my surprise, I found *Rhabdonia tenera*, *Gracilaria multipartita*, *Chondria Baileyana*, *Polysiphonia Harveyi*, and *Polysiphonia Olneyi*. In short the flora was entirely different from anything I had ever seen before north of Cape Cod."

II. A warmer period is indicated in Essex County, Massachusetts, and in other parts of New England, by the finding on our coast of a fossil marine fauna such as is now known to inhabit the mud on the coast primarily south of Cape Cod, where the waters of the bays are much warmer than on the coast of Essex County. In deep digging for the foundation of the Boston and Maine Railroad bridge across Parker River in Newbury, the workmen came upon a large bed of

<sup>1</sup> These distances are in a direct line taken from Colton's Atlas.

shells of the oyster, *Ostrea virginiana*, many of which had both valves intact, showing that they had lived in the mud there. A few years later, in putting a new foundation for the railroad bridge at Rowley across Rowley River, still larger beds of shells of *Ostrea virginiana* were uncovered, some of which shells were 12 inches long by 3 inches wide. Upon an examination along the shore, I found extensive Indian shell heaps made nearly exclusively of these shells. Again, upon the working over of another Indian shell heap, on Perkins Island, Ipswich River, there were found large deposits of these shells, together with shells of *Venus mercenaria* (Quahog) and *Mya arenaria* (the common clam).

Recent investigations, in looking over the mud dredged from the bed of Bass River in Beverly, revealed shells of *Ostrea virginiana*, together with shells of *Pecten gibbus* L. var. *borealis*, *Astarte sulcata* and *A. undata* Gould, and *Pandora Gouldiana* Dall; also a coralline cluster of Bryozoans incrusting stones (*Schizoporella unicornia* Johnston, identified by Dr. Bassler of the National Museum). These cluster-colonies completely covered stones six inches long and three inches broad and were built up nearly half an inch thick. In washing the mud I collected many thousands of shells of Foraminifera of several species.

A few feet below the living fauna, in the muddy bottom of Danvers River, near the new bridge connecting North Salem with Beverly, I found another large bed of the shells of *Ostrea virginiana*, together with numerous shells of *Pecten*. Shells of *Astarte undata* were also abundant; and shells of *Anomia glabra* Verrill, of great size, one of them three inches in diameter, with many other species, were thickly scattered among them. Shells of *Venus mercenaria* (Quahog), some of which measured four and a half by three and a half inches, were common. Several species of coralline clusters of Bryozoans, including *Schizoporella* sp. and *Escharella variabilis* Verrill, were found.

The fauna represented by the above species, from these various stations in Essex County, is now known to live south of Cape Cod, where the Gulf Stream flows nearer the coast thus giving a much warmer climate. This indicates that there must have been a similar warm climate on the coast of Essex County, when this fauna flourished here and elsewhere north of Cape Cod — on the coast of northern New England and probably in the Bay of Fundy and the Gulf of St. Lawrence; and as these shell fish, *Ostrea virginiana*, *Venus mercenaria*,



etc., were used by the Indians as food, they must have lived here in our tidal estuaries and harbors until modern times.

III. The warm epoch along the coast of Essex County and northern New England is explained by an elevation of the land in New England and adjacent regions which followed the Champlain subsidence. At the end of the Champlain subsidence the land on our coast had become submerged to a depth of 360 or more feet, as pointed out in the Physical Geography and Geology of Essex County.<sup>1</sup> After the Champlain subsidence the land was again elevated, as is proved by the finding of fossil shells of *Portlandia arctica* Gray, *P. lucida* Loven, and other species of Arctic mollusks, together with the hard parts of a large starfish, *Asteracanthion Lincki* Muhler, in the clay beds at about the present sea level in Danvers and Lynn, Essex County, Massachusetts; for at present the above species of *Portlandia* are taken alive on the coast of Norway only at a depth of from 360 to 500 feet. Judging from the rate of the subsidence now going on,<sup>2</sup> about one foot in a century, this elevation of 360 or more feet must have taken approximately 36,000 years. In the course of this elevation at the North, the Straits of Belle Isle must have become land locked,<sup>3</sup> thus forcing the Labrador current, with its cold waters and icebergs, to join the Greenland current in its northward flow. This closing of the Straits of Belle Isle allowed the warm waters of the southern seas to come into Cape Cod and Boston Bays. Under such conditions the climate of Essex County and northern New England must have been similar to the climate of southern New England, and probably to that of the New Jersey coast; and a warm epoch continued here probably for a long time. During this epoch the fauna previously described, of *Ostrea*, *Pecten*, etc., was introduced and multiplied in our waters; and as the land emerged above the waters the southern flora took possession of it. Some of the plants of that southern flora, as previously noted, have survived to the present time, according to situation or environment, and have become acclimated.

Professor James D. Dana writes "On the coast of Maine there are large Indian shell heaps of the common clam, *Venus mercenaria* (the Quahog of the Indians) and, in some places, of the Virginia Oyster, species that are now nearly extinct on the cold coast. As made known by Verrill there is a colony of living southern species in Quahog Bay,

<sup>1</sup> Sears, Phys. Geogr., Geol. etc. of Essex Co. 373. (1905).

<sup>2</sup> See Sears, l. c.; Chapter on Subsidence, p. 58.

<sup>3</sup> At the present time an elevation of 200 feet would close the Straits of Belle Isle.

near Bath, twenty miles east of Portland, among which are *Venus mercenaria*, and others, reminding one, as Verrill says, of the coast fauna of New Haven, on Long Island Sound. Shells of oysters, clams, and scallops (the southern *Pecten irradians*) are abundant in the deeper portions of the mud of the harbor of Portland. As with the flora, so with the fauna, certain species are found to-day, living in protected situations.”<sup>1</sup>

PEABODY ACADEMY OF SCIENCE,  
Salem, Massachusetts.

## NOTES ON SOME PLANTS OF NORTHEASTERN AMERICA.

M. L. FERNALD.

DURING studies upon various North American plants the attention of the writer has been called to several northeastern species, varieties, and notable forms which are either undescribed or are now passing by names which they cannot retain under the international rules adopted at Vienna. Most of these plants are of such diverse affinities as to furnish slight thread for a continuous discussion, and the notes upon them have, therefore, been allowed to accumulate. As the number of these notes is now considerable they are here presented that they may be more readily available.

POTAMOGETON **bupleuroides**, n. sp., caulibus gracilibus 1-2 mm. crassis 3-7 dm. longis plerumque ramosissimis rectis, internodiis brevibus 0.5-1.5 (raro ad 3) dm. longis; foliis planis fulvis valde unicos-tatis nerviis lateralibus 6-16, superioribus orbicularibus vel ovatis obtusis basi amplexicaulibus 1-3 cm. longis, inferioribus ovatis vel lanceolatis obtusis vel subacutis 2.5-4.5 cm. longis; stipulis obsoletis vel nullis; pedunculis gracilibus 2-6 cm. longis; spicis 0.7-2 cm. longis; fructibus anguste obovoideis 2.5-3.2 mm. longis lateraliter compressis valde impressis dorso convexo obscure carinato, stylo gracili, epicarpo olivaceo-fulvo arete contento. — Stems slender, 1-2 mm. thick, not spongy, 3-7 dm. long, simple below, usually much branched above,

<sup>1</sup> Dana Manual of Geology, 561.



straightish; the internodes short, 0.5–1.5 (rarely becoming 3) dm. long: leaves flat, scarcely crisped at the margin, drying bronze or blackish-green, 7–17-nerved, only the midrib prominent; the upper orbicular to ovate, obtuse, amplexicaul, 1–3 cm. long; the lower ovate to lanceolate, obtuse or subacute, 2.5–4.5 cm. long: stipules obsolete or when present very short and inconspicuous: peduncles slender, not spongy-thickened, 2–6 cm. long: spikes 0.7–2 cm. long: fruit slender-obovoid, 2.5–3.2 mm. long, the sides flat and deeply pitted, the back rounded and obscurely 3-keeled; style slender and prominent; epicarp olive- or reddish-brown, closely investing the seed.— Brackish, occasionally fresh, ponds and quiet streams, Newfoundland and Gaspé Co., Quebec to Florida, chiefly near the coast, and rarely inland to western New York and Michigan. Type collected in pools at Holyrood, NEWFOUNDLAND, 23 August, 1894 (*Robinson & Schrenk*, no. 207). The coastal representative of *Potamogeton perfoliatus*, which has ordinarily thicker softer or spongy stems and peduncles; larger crisp-margined greener leaves with more numerous nerves (15–27); stipules, when developed, nearly 1 cm. long; longer spikes; and larger fruit which is more obviously keeled and has a looser-fitting or puckered epicarp.

MELICA STRIATA (Michx.) Hitchc., forma **albicans** (Fernald), n. comb. *Avena striata* Michx., forma *albicans* Fernald, RHODORA, vii. 244 (1905).

ERIOPHORUM TENELLUM Nutt., var. **monticola**, n. var., nanum 1–2 dm. altum; foliis confertis; spicis solitariis; bractea involucris et squamis ut apud formam typicam.— Dwarf, 1–2 dm. high, with crowded leaves: spike solitary: involucreal bract and scales as in the typical form.— QUEBEC, in a quagmire at the edge of Lac Chicoutey, altitude 975 m., Table-top Mountain, Gaspé Co., August 10, 1906 (*Fernald & Collins*, no. 174). A very pretty alpine extreme of the common *E. tenellum* (*E. paucinervium* A. A. Eaton), in its solitary spike suggesting *E. Chamissonis*, var. *albidum*; but with the definite 1-leaved involucre, the elongate acute leaf-blades, and the pale stramineous scales of *E. tenellum*.

CAREX SCIRPOIDES Schkuhr, var. **capillacea** (Bailey), n. comb. *C. interior* Bailey, var. *capillacea* Bailey, Bull. Torr. Bot. Cl. xx. 426 (1893).— In the Proceedings of the American Academy, xxxvii. 457, 485 (1902) and in other publications the writer has inclined to the opinion that Schkuhr's *C. scirpoides* (1806) could not be maintained

on account of the earlier *C. scirpoidea* Michx. (1803) and that the species described by Schkuhr must be known as *C. interior* Bailey. The Vienna Code, however, indicates that, although differing only slightly, the names are to be treated as different.

CAREX SCIRPOIDES Schkuhr, var. **Josselynii** (Fernald), n. comb. *C. interior* Bailey, var. *Josselynii* Fernald, RHODORA, viii. 115 (1906).

CAREX DIANDRA Schrank, var. **ramosa** (Boott), n. comb. *C. teretiuscula* Good., var. *ramosa* Boott, Ill. 145 (1867). *C. prairea* Dewey in Wood, Classbook, 578 (1855). *C. teretiuscula*, var. *prairea* Britton in Britton & Brown, Ill. Fl. i. 344 (1896).—The name *C. diandra* Schrank, Cent. Bot. Anmerk. 57 [49] (1781) must replace the later *C. teretiuscula* Good. Trans. Linn. Soc. ii. 163 (1794).

CAREX ROSTRATA × SAXATILIS, var. **MILIARIS**, n. hybr., quam *C. saxatilis*, var. *miliaris* (Michx.) Bailey vix minus gracilis; culmis 2.5–4 dm. altis supra scabris; foliis planis elongatis 2–3 mm. latis; spicis fertilibus 1–5 varie dispositis nunc omnibus vel fere omnibus arcte aggregatis nunc remotis 1–3 cm. longis; perigyniis stramineis ovoideis obscure nerviis vel enerviis, rostro brevi acuto bidentato; squamis purpureis in eodem specimine longitudine diversis obtusis vel acuminatis; acheniis plerumque abortivis.—Nearly as slender as *C. saxatilis* L., var. *miliaris* (Michx.) Bailey, the culms, 2.5–4 dm. high, scabrous above: leaves flat, elongate, 2–3 mm. broad: pistillate spikes 1–5, variously disposed, sometimes all or nearly all closely aggregated, sometimes all or nearly all very remote, 1–3 cm. long: perigynia stramineous, ovoid, faintly nerved or nerveless; the short beak sharply bidentate: scales purplish, of various lengths on the same plant, blunt or acuminate: achenes mostly undeveloped.—QUEBEC, growing with the two parents in a boggy meadow near the northern end of Table-top Mountain, Gaspé Co., August 13, 1906 (*Fernald & Collins*, no. 188).

JUNCUS ALPINUS Vill., var. **fuscescens**, n. var., ramis inflorescentiae laxe ascendentis non strictis, glomerulis compactis regulariter floriferis, floribus viridescentibus vel stramineis.—Branches of the inflorescence loosely ascending, not strict: glomerules compact and regularly flowered: flowers greenish or straw-colored.—Widely distributed from western Vermont to British Columbia and Missouri. Type collected about a brackish spring, Cayuga Marshes, NEW YORK, August 16 and September 23, 1885 (*W. R. Dudley*, no. 137). In *J. alpinus* and its var. *insignis* Fries, the branches of the inflorescence



are strict, and the loose glomerules usually have one or more of the flowers elevated above the rest on elongate pedicels.

*QUERCUS RUBRA* L., var. **ambigua** (Michx. f.), n. comb. *Q. ambigua* Michx. f., Hist. Arb. Am. ii. 120, t. 24 (1812). *Q. borealis* Michx. f., N. Am. Sylva, i. 198 (1859). *Q. coccinea*, var. *ambigua* Gray, Man. ed. 5, 454 (1867).—This tree not only in its foliage but in its generally northern or upland range is clearly an extreme of *Q. rubra*, rather than of the ordinarily more southern *Q. coccinea*.

*NYMPHAEA ADVENA* Ait., var. **variegata** (Engelm.), n. comb. *Nuphar advena* Ait. f., var. *variegatum* Engelm. in Gray, Man. ed. 5, 57 (1867). *Nymphaea variegata* G. S. Miller, Proc. Biol. Soc. Wash. XV. 13, pl. 2 (1902).—Both the yellow Cow Lilies and the White (or pink) Pond Lilies were included by Linnaeus under *Nymphaea*, but by the majority of authors this name has been subsequently maintained for the genus including our familiar fragrant White Water Lily, while the yellow Cow Lilies have taken the name *Nuphar* Sibth. & Smith (1808 or 1809). Prior to the splitting of the Linnean genus by Sibthorp & Smith, however, Salisbury had published an elaborate monograph of the showier Water Lilies as *Castalia* (1805), leaving the name *Nymphaea* to stand for the remainder of the Linnean genus, i. e. the plants which were later taken up under the name *Nuphar*. It is unfortunate that such confusion in the names has prevailed, but the principle of priority demands the taking up of *Castalia* and of *Nymphaea* (*Nuphar*).

*CASTALIA ODORATA* (Ait.) Woodville & Wood, var. **gigantea** (Tricker), n. comb. *Nymphaea odorata* Ait., var. *gigantea* Tricker, Water Garden (1897) ex Conard, Water Lilies, 186.

*THALICTRUM POLYGAMUM* Muhl., var. **hebecarpum**, n. var., carpellis villosis; foliolis subtus plerumque pubescentibus.—Carpels villous: lower surfaces of the leaflets usually pubescent. —The northeastern extreme of the species, more abundant than the typical form of the species in the Gaspé Peninsula and northern Maine, extending to Newfoundland, New Hampshire, and southern Ontario. Type collected in a gravelly thicket by the St. Lawrence, Rivière du Loup, QUEBEC, August 2, 1902 (*E. F. Williams* & *M. L. Fernald*).

*FRAGARIA MULTICIPITA*, n. sp., caespitosa; caudice rarissime stolonifero in ramos (apud exempla robusta etiam 30–40) breves congestos diviso; ramis quibusque folia 3–4 gerentibus; petiolis 2–7 cm. longis gracillimis appresse sericeis; foliolis 1–2.5 cm. longis supra viridibus

paulo strigosis vel glabratis subtus albis paulo appresse sericeis, terminali anguste cuneato-obovato vix stipellato infra apicem rotundatum vel subtruncatum grosse incurvo-serratum integro, lateralibus obliquis latere interiori cuneata basi integro latere exteriori basi rotundato dentato; scapis gracillimis sericeis quam petioli brevioribus vel eos subacquantibus 1-2 (raro 4)-floris; bracteis lanceolatis integris vel laceratis; pedicellis fructiferis recurvatis; calyce 5-10 mm. lato, lobis lanceolato-oblongis acuminatis; bracteolis paulo angustioribus; fructu ut apud *F. virginianam* subgloboso vel breviter ovoideo 5-10 mm. longo; achaeniis laevibus 1 mm. longis.— Plant caespitose, the caudex freely divided into several (in large plants 30 to 40) short crowded upright branches, very rarely stoloniferous; each branch bearing 3 or 4 small leaves: petioles 2-7 cm. long, very slender, appressed-silky: leaflets 1-2.5 cm. long, green and slightly strigose or glabrate above, white and sparingly appressed-silky beneath; the terminal narrowly cuneate-obovate, barely stipellate, entire below the rounded or subtruncate coarsely incurved-serrate tip; lateral leaflets oblique, the inner side cuneate and entire at base, the outer rounded at base and toothed: scapes very slender, silky, shorter than or about equaling the petioles, 1-2 (rarely 4)-flowered: bracts lanceolate, entire or lacerate: fruiting pedicels recurving: calyx 5-10 mm. broad, the lobes lance-oblong, acuminate; bractlets slightly narrower: fruit as in *F. virginiana*, subglobose or short-ovoid, 5-10 mm. long: achenes smooth, 1 mm. long.— QUEBEC, gravelly and sandy beaches and bars or the River Ste. Anne des Monts, July 14-17, 1906 (*Fernald & Collins*, no. 230).

POTENTILLA MONSPELIENSIS L., var. **labradorica** (Lehm.), n. comb. *P. labradorica* Lehm., Del. Sem. Hort. Hamb. 12 (1849) and Pugil. ix. 21 (1851).— This little known plant has been collected recently at several stations, not only on the Labrador coast, but about the lower St. Lawrence and on the White Mountains. It is a pronounced extreme of the common bristly-villous *P. monspeliensis*, in which the pubescence is nearly or quite wanting. The specimens examined are all small, some tufted and acaulescent, others simple and becoming 3 dm. high.

RUBUS IDAEUS L., var. ACULEATISSIMUS Regel & Tiling, forma **albus**, n. comb. *R. strigosus* Michx., var. *albus* Fuller ex Bailey, Cyc. Am. Hort. 1582 (1902).

RUBUS ALLEGHENIENSIS Porter, forma **albinus** (Bailey), n. comb.



*R. villosus*, var. *albinus* Bailey, Am. Gard. xi. 720 (1890). *R. nigrobaccus* Bailey, var. *albinus* Bailey, Evolution of Our Native Fruits, 380 (1898).—As recently shown by Mr. W. H. Blanchard (RHODORA, viii. 217) *R. allegheniensis* Porter (1896) must be taken up in place of *R. nigrobaccus* Bailey (1898).

RUBUS ALLEGHENIENSIS Porter, var. *calycosus* (Fernald), n. comb. *R. nigrobaccus*, var. *calycosus* Fernald, RHODORA, iii. 234 (1901).

RUBUS ALLEGHENIENSIS Porter, var. *Gravesii* (Fernald), n. comb. *R. nigrobaccus*, var. *Gravesii* Fernald, RHODORA, iii. 295 (1901).

ASTRAGALUS ALPINUS L., var. *Brunetianus*, n. var., ramis elongatis 2–6 dm. longis; foliolis plerumque 15–29; leguminibus maturis virescentibus vel stramineis strigosis, pilis brevis nigris vel albidis.—Branches elongate (2–6 dm. long): leaflets usually 15–29: mature pods greenish or pale brown, strigose with short black or even whitish hairs.—Calcareous ledges and gravelly shores, eastern Quebec to Hudson Bay, south to southern New Brunswick, central Maine, and Vermont; also abundant in the Rocky Mts. Type collected on gravelly shores, Fort Fairfield, MAINE, July 18, 1893 (Fernald, no. 24). Dedicated to the late Abbé Louis Ovide Brunet, of Laval University, Quebec, a close student of the flora of Quebec and founder of the botanical Museum of his university. The more northern or alpine *Astragalus alpinus* is a smaller plant with fewer leaflets (11–23) and with the pods intensely black with long slightly spreading hairs. The two extremes clearly pass together as shown by several specimens, and the more southern plant has been called by Mr. E. P. Sheldon *Astragalus giganteus* (Pallas) Sheldon (Bull. Geol. and Nat. Hist. Surv. Minn. ix. 65). Pallas's *A. alpinus*, var. *giganteus*, however, upon which Mr. Sheldon based his so-called species, is shown clearly by the original plate (Astrag. 42, t. 33) to have little to do with our plant, but to be nearer related to *A. oroboides*.

LESPEDeza CAPITATA Michx., var. *velutina* (Bicknell), n. comb. *L. velutina* Bicknell, Torreyia, i. 102 (1901). *L. Bicknellii* House, Torreyia, v. 167 (1905).—Prolonged study in the field has convinced the writer that, although *L. velutina* is a notable extreme of the very variable *L. capitata*, it does not retain its characters with sufficient constancy to merit specific rank.

CALLITRICHE *anceps*, n. sp., caulibus valde compressis ancipitis humilibus simplicibus vel subsimplicibus 5–25 mm. longis, internodiis perbrevibus 1–4 mm. longis; foliis uniformibus linearibus 2–7 mm.

longis, apice leviter emarginato; fructu suborbiculari 0.5–0.8 mm. diametro angulis rotundatis, stigmatibus celeriter deciduis.—Stems strongly compressed, ancipital, low, simple or subsimple, 5–25 mm. long; the internodes very short, 1–4 mm. long; leaves uniform, linear, 2–7 mm. long, slightly emarginate at apex; fruit suborbicular, 0.5–0.8 mm. in diameter, the angles rounded; stigmas promptly deciduous, not observed in any of the mature specimens.—In silt and granitic gravel at the bottoms of alpine and subalpine ponds and lakes, Table-top Mountain, Gaspé Co., QUEBEC. Type collected in “Lac des Américains,” altitude 670 m., western base of Table-top Mt., August 1, 1906 (*Fernald & Collins*, no. 234). Observed in many other lakes and ponds up to an altitude of 1150 meters. Ordinarily the plant, which is quickly distinguished from *C. heterophylla* by its small size, uniform foliage, ancipital stem, and promptly deciduous stigmas, grows in deep water with *Subularia aquatica*, *Isoetes macrospora*, etc., and shows no inclination to lengthen its stem and to reach the surface. Occasionally it is stranded at the margins of lakes when it becomes very dwarf, with closely crowded shorter uniformly linear-oblong leaves.

*RHUS CANADENSIS* Marsh., var. *illinoensis* (Greene), n. comb. *Schmaltzia illinoensis* Greene, Leaf., i. 131 (1905).—A shrub of central Illinois differing from the typical form of the species in its greater pubescence.

*SPHAERALCEA remota* (Greene), n. comb. *Iliamna remota* Greene, Leaf., i. 206 (1906). *Sphaeralcea acerifolia* Gray, Syn. Fl. i. 317, as to Illinois plant, not Nutt. in Torr. & Gray, Fl., i. 228.—Professor Greene has shown very clearly that the local plant of a gravelly island in the Kankakee River, near Alton, Illinois, is specifically distinct from the northwestern plant described by Nuttall as *S. acerifolia*.

*MYRIOPHYLLUM HUMILE* (Raf.) Morong, forma *natans* (DC.), n. comb. *M. ambiguum* Nutt. Gen. ii. 212 (1818). *M. ambiguum*, var. *natans* DC. Prodr. iii. 70 (1828).—Rafinesque's *Burshia humilis* (1808) was clearly the dwarf shore plant which has been known as *Myriophyllum ambiguum*, var. *limosum* Nutt., and, as the first specific name, must be retained for the species.

*MYRIOPHYLLUM HUMILE*, forma *capillaceum* (Torr.), n. comb. *M. capillaceum* Torr. Compend. 355 (1826). *M. ambiguum*, var. *capillaceum* Torr. & Gray, Fl. i. 530 (1840).

*OSMORHIZA LONGISTYLIS* (Torr.) DC., var. *villicaulis*, n. var.,

caulibus albo-villosis, foliis fructibusque eis formae typicae similibus.—Stems white-villous: leaves and fruit as in the typical form.—Pennsylvania, Illinois and Kansas; the type collected on limestone, on the Conostoga, near Binkley's Bridge, Lancaster Co., PENNSYLVANIA, June 21, 1901 (*A. A. Heller*). In its pubescence strongly simulating *O. Claytoni* (Michx.) Clarke, but with the foliage and fruit of *O. longistylis*.

*LYONIA nitida* (Bartr.), n. comb. *Andromeda nitida* Bartr. ex Marsh. Arb. 8 (1785). *Pieris nitida* Benth. & Hook. f. Gen. ii. 588 (1876).—*Lyonia* is well distinguished from *Andromeda* by its angulate capsule with thickened or corky sutures, and by its awnless anthers.

*LYONIA LIGUSTRINA* (L.) DC., var. *foliosiflora* (Michx.), n. comb. *Andromeda pedunculata*, var. *foliosiflora* Michx. Fl. i. 254 (1803). *Xolisma foliosiflora* Small, Fl. 889, 1336 (1903).—This variety is more pronounced in the Southern States than in the North, where the typical form of the species is most abundant. Occasionally, however, the variety is found in New England.

*GAYLUSSACIA BACCATA* Wang., forma *leucocarpa* (Porter), n. comb. *G. resinosa* (Ait.) Torr. & Gray, var. *leucocarpa* Porter, Bull. Torr. Bot. Cl. xvi. 21 (1889).—Mr. Mackenzie has recently called attention<sup>1</sup> to the fact that Wangenheim, in 1787, clearly described and illustrated our common Huckleberry as *G. baccata*, two years before the shrub was designated by Aiton *Vaccinium resinosum*. The white- or amber-fruited form is rare, but it is occasionally found in sufficient quantity to furnish fruit to local markets.

*VACCINIUM neglectum* (Small), n. comb. *Polycodium neglectum* Small, Fl. 893, 1336 (1903).—A pretty species of our southeastern states with the branchlets, leaves, etc., strictly glabrous.

*VACCINIUM nubigenum*, n. sp., caule fruticoso 2–7 dm. alto, ramis teretibus purpureo-brunneis junioribus pubescentibus vel glabrescentibus; foliis ellipticis utrinque subacutis 1.5–3.5 cm. longis 7–17 mm. latis submembranaceis glabris sublucidis valde reticulatis serrulatis, dentibus spinulosis; floribus axillaribus solitariis, pedunculis 3–5 mm. longis; corollis ellipsoideo-urceolatis 6 mm. longis 4–5 mm. latis; baccis globosis vel pyriformibus glauco-nigris 7–9 mm. longis.—Shrub 2–7 dm. high: branches terete, the older ones purplish-brown beneath the freely exfoliating light gray epidermis; the young branchlets paler brown, puberulent or glabrate: leaves elliptic, subacute at each end,

<sup>1</sup> K. K. Mackenzie, Torreya, vii. 60 (1907).



1.5–3.5 cm. long, 7–17 mm. wide, submembranaceous, glabrous, somewhat lustrous, the veins prominently reticulate, the fine and numerous appressed teeth spinulose: flowers axillary, solitary, on peduncles 3–5 mm. long: corolla ellipsoid-urceolate, pink, 6 mm. long, 4–5 mm. wide: berries globular or pyriform, deep blue-black, with a bloom, 7–9 mm. long.—QUEBEC, abundant in Gaspé County, in subalpine and alpine districts on the hornblende-schist of Mt. Albert, and on the granitic area of Table-top Mt. Type material, in flower and young fruit, collected on hornblende-schist or in the alluvium of an alpine brook, Allen's Ravine, north slope of Mt. Albert, July 26 and 28, 1906 (*Fernald & Collins*, no. 242); in mature fruit, on Table-top Mt., August 9, 1906 (no. 688). Also represented in the Gray Herbarium by nos. 684, 685, 687, 689, and 690. Associated in the subalpine forests and ravines with *V. ovalifolium* Sm. and *V. caespitosum* Michx., ordinarily in more sheltered situations than *V. uliginosum* L. and *V. pennsylvanicum*, var. *angustifolium* (Ait.) Gray. Nearest related to the northwestern *V. membranaceum* Dougl., which has the paler branches somewhat angled, the larger leaves paler beneath, and the larger corolla depressed-globose.

**CENTAURIUM spicatum** (L.), n. comb. *Gentiana spicata* L. Sp. 230 (1753). *Erythraea spicata* Pers. Syn. i. 283 (1805). — The little group of plants known as Centauries were very generally called by pre-Linnean botanists *Centaurium*, but in the 1st edition of the *Species Plantarum* Linnaeus placed them under *Gentiana*. In 1790, Necker separated them as *Erithrea* (often spelled *Erythraea*) and they have subsequently borne that name. Prior to Necker's publication, however, as recently pointed out by Messrs. Britten & Rendle, the old name *Centaurium* had been clearly used by Hill in his *British Herbal* (1756), and consequently this historic name must be maintained for the genus. In eastern America we have two other species:

**CENTAURIUM texense** (Griseb.), n. comb. *Erythraea texensis* Griseb. ex Hook. Fl. Bor.-Am. ii. 58 (1838) and Gen. et Sp. Gent. 39 (1839).

**CENTAURIUM calycosum** (Buckl.), n. comb. *Erythraea calycosa* Buckl. Proc. Acad. Phila., 1862, 7 (1863).

**NYMPHOIDES lacunosum** (Vent.), n. comb. *Villarsia lacunosa* Vent. Choix des Pl. 9 (1803). *Limnanthemum lacunosum* Griseb. Gen. et Sp. Gent. 347 (1839).—Hill, again, in 1756 clearly defined the European yellow-flowered Floating Heart as *Nymphoides*, fourteen years

before it was distinguished by S. P. Gmelin as *Limnanthemum* (1770), and this name must accordingly be used for our Floating Hearts. The larger of our northeastern species should be called

*NYMPHOIDES aquaticum* (Walt.), n. comb. *Anonymos aquatica* Walt. Fl. Carol. 109 (1788). *Limnanthemum trachyspermum* Gray, Man. ed. 5, 390 (1867). *Limnanthemum aquaticum* Britton, Trans. N. Y. Acad. Sci. ix. 12 (1889).

*APOCYNUM CANNABINUM* L., var. **nemorale** (G. S. Miller), n. comb. *A. nemorale* G. S. Miller, Proc. Biol. Soc. Wash. xiii. 87 (1899).—With the small greenish or greenish-white flowers of *A. cannabinum*, but with the leaves mostly drooping or spreading on elongate petioles 1–1.5 cm. long.

*CONVOLVULUS SEPIUM* L., var. **pubescens** (Gray), n. comb. *C. repens* L. Sp. 158 (1753) as to Gronovian plant. *C. sepium*, var. *repens* Gray, Syn. Fl. ii. pt. 1. 215 (1878). *Calystegia sepium* (L.) R. Br., var. *pubescens* Gray, Man., ed. 5, 376 (1867).—This pretty plant, abundant on the coast from the Gulf of St. Lawrence southward, is commonly pubescent, but not infrequently essentially glabrous, when it is separable from true *C. sepium* only by the less hastate basal lobes of the leaves, a character too inconstant to allow the specific separation of the two plants.

*MYOSOTIS VIRGINICA* (L.) B S P., var. **macrosperma** (Engelm.), n. comb. *M. macrosperma* Engelm., Am. Jour. Sci., xlv. 98 (1844). *M. verna* Nutt., var. *macrosperma* Chapm. Fl. 333 (1860).

GRAY HERBARIUM.

(To be continued.)

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THE 13TH ANNUAL WINTER MEETING OF THE VERMONT BOTANICAL CLUB was held at the University of Vermont, Burlington, January 17 and 18. Nineteen new members were elected and the longest program in the history of the Club, with 23 titles, was carried out. The annual supper complimentary to visiting members was held on the evening of the 17th, followed by a very interesting lecture on "The Flora of the Shickshock Mts. and the Gaspé Coast" by Prof. M. L. Fernald of Harvard University, illustrated by lantern slides. John Ritchie Jr. gave a talk on Mt. Washington, where the Club intends to go the first week of July next. This was also illustrated by the lantern. The

officers were reelected as follows:—Pres., Ezra Brainerd, Vice-Pres., C. G. Pringle, Treas., Mrs. Nellie F. Flynn, Sec'y., L. R. Jones. Additional members of the executive committee, Dana S. Carpenter, Mrs. E. B. Davenport, Miss Nancy Darling. Miss May O. Boynton gave a report on a beginning of a Club Library and was appointed Librarian with authority to continue the work. The Club's Bulletin No. 3 will be issued some time in April probably.—NELLIE F. FLYNN.

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SPARGANIUM DIVERSIFOLIUM, VAR. ACAULE IN MASSACHUSETTS.—In a preliminary list of New England *Sparganiaceae* (RHODORA, ix. 86, May, 1907) *Sparganium diversifolium* Graebner, var. *acaule* (Beeby) Fernald & Eames was reported from all the New England states except Massachusetts and Rhode Island. Late last summer I found this *Sparganium* in Framingham, Mass. There were several plants in a muddy brook in a warm, open meadow and they were fruiting well. Near by in a shallow pool drained by this stream were numerous plants of the species. None of the latter, however, were found in the running water, nor any of the variety in the pool and no intermediate forms were observed. With the list the suggestion was made that this plant be sought in central and western Massachusetts and in northwestern Rhode Island. It now seems that, as this dwarf variety has been found somewhat east of the hill country and in the midst of sand-plains, it may well be watched for elsewhere in eastern Massachusetts and perhaps through Rhode Island.—ARTHUR J. EAMES.

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SALIX INCANA AT CASTINE, MAINE.—On Sept. 19, 1906, I collected in Castine, Hancock Co., Maine, a willow, which is pronounced by Prof. Fernald to whom it has been submitted for identification, *Salix incana* Schrank, a European species that, according to the Cyclopædia of American Horticulture, is cultivated by American Nurserymen.

The several plants found were growing on a dry natural bank or low bluff close by the sea beach. They were spreading and procumbent at their bases with branches rising to 4.5–6 dm.; leaves linear or narrowly lanceolate, with margins strongly revolute, and under surface densely white-tomentose.—ROBERT A. WARE, Boston.





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